

[19] Patent Office of the People's Republic of China
[11] Announcement No. CN 20413409



[12] Specification of Application for Patent for
Utility Model

[21] Application No. 88217348.0

[51] Int. Cl.
E05B 57/00

[43] Announcement Date: 19 July 1989

[22] Date of Filing: 20 July
1986

[71] Applicant: Liu Dian-hui
Address: Metalworking
shop, the First
Machine Repair Shop of
Kieyo Steel Factory,
Jiangxi Province,
China

[74] Patent Agency:

Jiangxi Patent Service
Centre

Patent Agent: Ma Xiang-
hong

E05B 63/00

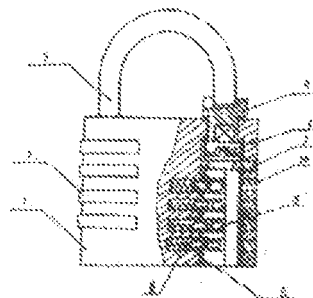
[72] Creators:
Liu Dian-hui

Description: 2 pages
Accompanying Drawings: 2
pages

[54] Title of Utility Model:
Convenient padlock

[57] Abstract:

This utility model relates to a convenient padlock, which can be unlocked either by a combination code or by a key. Half of this lock is configured as a combination control structure, and the other half is configured as a key pad control structure, it is characterized in that the upper end of the lock cylinder is fitted with a specific matching pin and an opening-closing pin. This padlock combines the advantages of a pin tumbler lock and a



combination lock; normally it is unlocked by a key, and if the key is not available or lost, the lock can be unlocked by code discer, therefore, not only does it save the user's time, but it also avoids the troubles caused to the user if the key is lost, moreover it indirectly achieves the effect of prolonging the padlocks' service life.

Claims

1. Convenient padlock which can be unlocked either by a combination code or by a key, comprising a lock body 1, a code disc 2, a shackle 3, a lock cylinder 5, a spring 8, a key pin 9 and a block 10, characterized in that in a groove on the upper section of the lock cylinder 2 a positioning pin 7 is fitted, and the upper end of the lock cylinder 5 is fitted with a matching pin 6 and an opening-closing pin 4.

2. Convenient padlock according to claim 1, characterized in that a smaller end of the opening-closing pin 4 is machined with a square hole, and a bigger end opens into a U-shaped open groove.

3. Convenient padlock according to claim 1, characterized in that a smaller end of the opening-closing pin 4 is machined with a thread, and a bigger end thereof is machined with a square hole.

Description

Convenient Padlock

This utility model relates to a convenient padlock, which can be unlocked either by a combination code or by a key.

As is well known, the main types of padlocks include pin tumbler locks and combination locks, and there are also security locks which combine the functions of pin tumbler locks and combination locks. The pin tumbler locks are convenient to lock and unlock and the structures are simple, but at times a user will often forget or lose the key so the lock cannot be unlocked or it has to be destroyed; while although the problem does not exist with combination locks, they are troublesome to use and take more time.

An object of this utility model is to overcome the drawbacks of both the pin tumbler locks and the combination locks, to combine the advantages of both types of locks, and to provide a novel convenient padlock which can be unlocked either by a combination code or by a key.

The task of this utility model is accomplished as follows. That is, half of the lock is fitted with a combination code control structure, and the other half with a key pin control structure, which is composed of a lock body, a code disc, a shackle, a lock cylinder, a spring, a key pin and a block. It is characterized in that in a groove on the upper section of the lock cylinder a positioning pin is fitted, and its upper end is fitted with a specific matching pin and an opening-closing pin.

A smaller end of an opening-closing pin is machined with a square hole, and a bigger end thereof is machined with a square hole, and a bigger end thereof is inserted into a tapered open groove.

A smaller end of another opening-closing pin is machined with a thread, and a bigger end thereof is machined with a square hole.

This utility model combines the advantages of both a pin tumbler lock and a combination lock, normally it is unlocked by a key, if the key is not available or lost, it can be unlocked by a code disc, therefore, not only does it save the user's time, but it also avoids the trouble caused to the user if the key is lost, moreover it indirectly achieves the effects of prolonging the lock's service life.

A more detailed description of this utility model is given hereinafter with reference to the accompanying drawings and embodiments.

Fig. 1 is an illustrative structural diagram of an embodiment 1 of this utility model;

Fig. 2 is a front view of the opening-closing pin 4 in Fig. 1;

Fig. 3 is a view from left of Fig. 2;

Fig. 4 is an illustrative structural diagram of an embodiment 2 of this utility model;

Fig. 5 is a front view of the opening-closing pin 4 in Fig. 4; and

Fig. 6 is a view from left of Fig. 5.

Embodiment 1

Referring to Fig. 1, Fig. 2 and Fig. 3, the padlock is composed of a lock body, code discs 2, a shackle 3, and a key pin control assembly, etc. Key pins 9, springs 8 and blocks 10 are fitted in key pin grooves of the lock

body 1 and the lock cylinder 5, a neck part of the lock cylinder 5 is fitted with a positioning pin 7, a top end thereof is connected to a matching pin 6, the matching pin 6 in turn is connected to a square hole of an opening-closing pin 4, and a bigger end of the opening-closing pin 4 opens into a U-shaped open groove. When the user unlocks the lock by using a combination code, he rotates the code disc 2 to align the numbers, so that the shackle 3 moves upwards a certain distance, and the lock is unlocked; and when he unlocks the lock by using a key, he inserts the key in to rotate the lock cylinder 5, so the lock cylinder 5 causes the matching pin 6 and the opening-closing pin 4 to rotate 90°-90°, the shackle 3 rotates about the axis of the code disc 2, and moves from the U-shaped open groove of the opening-closing pin 4, and then the lock is unlocked.

embodiment 2:

Returning to Fig. 4, Fig. 5 and Fig. 6, the padlock is composed of a lock body 1, code disc 2, a shackle 3, and a key pin control assembly, etc. The key pins 9, springs 8 and blocks 10 are fitted in key pin grooves of the lock body 1 and the lock cylinder 5, a neck part of the lock cylinder 5 is fitted with a positioning pin 7 with its top end machined with a threaded hole for connection with the threaded end of a smaller end of the opening-closing pin 4, and the bigger end of the opening-closing pin 4 is machined with a square hole with a square end of the shackle 3 fitted in the square hole. The method for opening the lock by using a combination code is the same as in the embodiment 1; and when unlocking the lock with a key, the key is inserted into the lock cylinder 5 to cause the lock cylinder 5 to rotate, and the thread on the upper part of the lock cylinder 5 forces the opening-closing pin 4 to move downwards and causes the square end of the shackle 3 to disengage from the square end of the opening-closing pin 4, and the lock is unlocked.

Drawings Accompanying the Description

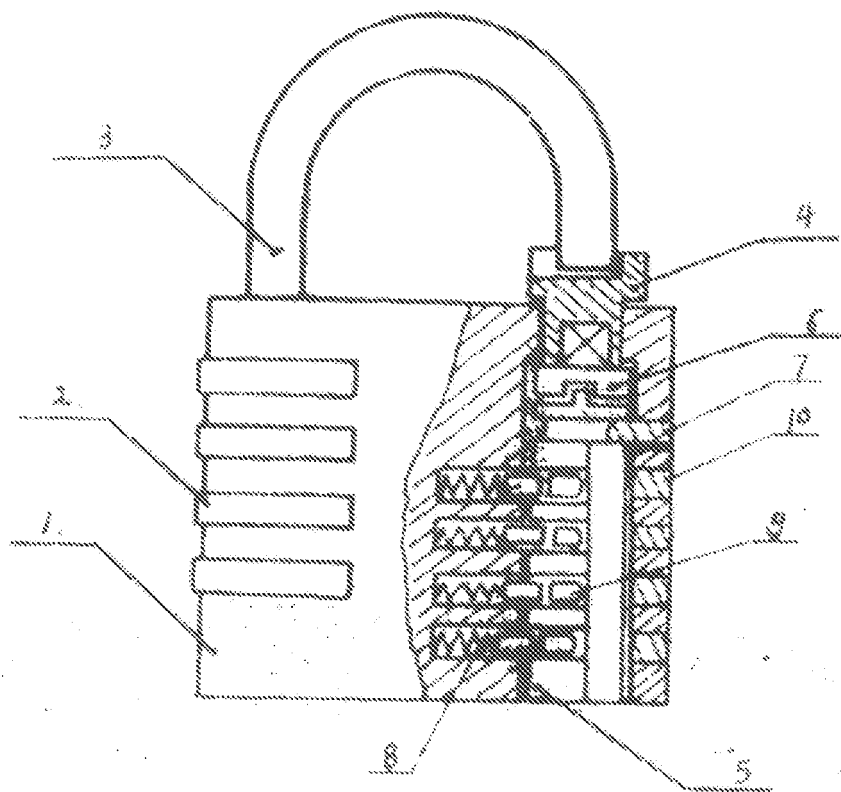


Fig. 1



Fig. 2

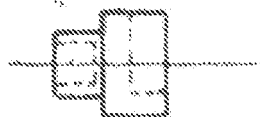


Fig. 3

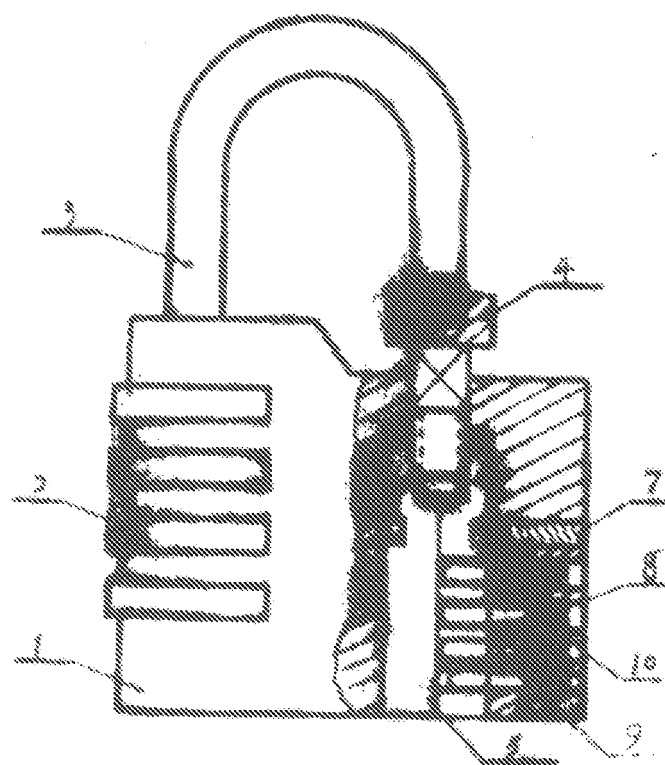


Fig. 4

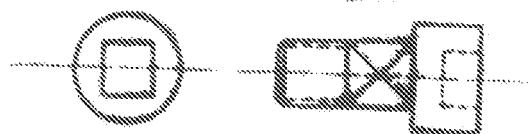


Fig. 5

Fig. 6